

**WHAT IS CLAIMED IS:**

1. A system for determining connection pattern of data ports which are interconnected by multiconductor cables, said data ports each having a socket, and said multiconductor cables each having a jack at each end of the cable which mates with said socket, said system comprising:

a socket contact positioned adjacent to said socket;

an external contact provided for each jack, said external contact making electrical connection with said socket contact when the jack is mated with said socket;

at least one output signal driver electrically coupled to at least one socket contact, said output driver being operative to send a signal to said socket contact;

at least one input signal receiver electrically coupled to at least one socket contact for receiving said signal sent by said output signal transducer;

a micro-processor coupled to said output signal transducer and said input signal driver for controlling said signal sent by said output signal driver and for detecting signals received by said input signal receiver, said microprocessor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

2. The system as recited in claim 1 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

3. The system as recited in claim 1 wherein said multiconductor cable is a standardized cable.

4. The system as recited in claim 3 wherein said multiconductor cable is an RJ45 cable.

5. The system as recited in claim 3 wherein said multiconductor cable is an RJ11 cable.

6. A system for determining connection pattern of data ports which are interconnected by standardized multiconductor cables, said data ports each having a standardized socket, and said multiconductor cables each having a standardized jack at each end of the cable which mates with said socket, said system comprising:

a socket contact positioned adjacent to said standardized socket;

an external contact provided for each standardized jack, said external contact making electrical connection with said socket contact when the jack is mated with said socket;

an output signal driver uniquely coupled to each socket contact, said output driver being operative to send a signal to said socket contact;

an input signal receiver uniquely coupled to each said socket contact for receiving said signal sent by said output signal driver;

a micro-processor coupled to said output signal driver and said input signal receiver for controlling said signal sent by said output signal driver and for detecting signals received by said input signal receiver, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

7. The system as recited in claim 6 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating said process for every socket contact.

8. A system for determining connection pattern of data ports, said data ports each having a socket, said system comprising:

a socket contact positioned adjacent to said socket;

a plurality of multiconductor cables interconnecting said data ports, said multiconductor cables each having a jack at each end of the cable which mates with said socket, each of said jack having an external contact, said external contact making electrical connection with said socket contact when the jack is mated with said socket;

output signal drivers uniquely coupled to each socket contact, said output drivers being operative to send a signal to said socket contact;

input signal receivers uniquely coupled to each said socket contact for receiving said signal sent by said output signal drivers;

a micro-processor coupled to said output signal drivers and said input signal receivers for controlling said signal sent by said output signal drivers and for detecting signals received by said input signal receivers, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

9. The system as recited in claim 8 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining

which of the input signal receivers have received the signal, and repeating the process for every socket contact.

10. The system as recited in claim 8 wherein said multiconductor cable is a standardized cable.

11. The system as recited in claim 10 wherein said multiconductor cable is an RJ45 cable.

12. The system as recited in claim 10 wherein said multiconductor cable is an RJ11 cable.

13. A kit for determining connection pattern of data ports which are interconnected by standardized multiconductor cables, said data ports each having a standardized socket, and said multiconductor cables each having a standardized jack at each end of the cable which mates with said socket, said kit comprising:

a plurality of adapter boards having a plurality of socket contacts, said adapter boards to be placed adjacent to said socket;

a plurality of adapter jackets to be fitted over said standardized jack, each of said adapter jackets having an external contact for electrically connecting with said socket contacts when said adapter jacket is fitted over said standardized jack and said standardized jack is mated with said standardized socket;

output signal drivers to be uniquely coupled to each socket contact, said output drivers being operative to send a signal to said socket contact;

input signal receivers to be uniquely coupled to each said socket contact for receiving said signal sent by said output signal drivers;

a micro-processor to be coupled to said output signal drivers and said input signal receivers for controlling said signal sent by said output signal drivers and for detecting signals received by said input signal receivers, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

14. The kit as recited in claim 1 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

15. A kit for determining connection pattern of data ports, said data ports each having a standardized socket, said kit comprising:

a plurality of adapter boards having a plurality of socket contacts, said adapter boards to be placed adjacent to said socket;

a plurality of multiconductor cables, said cables having a standardized jack at each end, each of said jacks having an external contact for electrically connecting with said socket contacts when said jack is mated with said socket;

output signal drivers to be uniquely coupled to each socket contact, said output drivers being operative to send a signal to said socket contact;

input signal receivers to be uniquely coupled to each said socket contact for receiving said signal sent by said output signal drivers;

a micro-processor to be coupled to said output signal drivers and said input signal receivers for controlling said signal sent by said output signal drivers and for detecting signals

received by said input signal receivers, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

16. The kit as recited in claim 3 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

17. A system for determining connection pattern of data ports which are interconnected by multiconductor cables, said data ports each having a socket, and said multiconductor cables each having a jack at each end of the cable which mates with said socket, said system comprising:

a socket contact positioned adjacent to said socket;

an external contact provided for each jack, said external contact making electrical connection with said socket contact when the jack is mated with said socket;

a diagnostic pen with a tip;

at least one output signal driver electrically coupled to at least one socket contact, said output driver being operative to send a signal to said socket contact;

at least one input signal receiver electrically coupled to at least one socket contact for receiving said signal sent by said output signal transducer;

a pen input signal receiver electrically coupled to said tip of said diagnostic pen;

a micro-processor coupled to said output signal driver, said input signal driver, and said pen input signal receiver, said micro-processor controlling said signal sent by said output signal

driver and for detecting signals received by said input signal receiver and said pen input signal receiver, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

18. The system as recited in claim 17 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

19. The system as recited in claim 17 wherein said multiconductor cable is a standardized cable.

20. The system as recited in claim 19 wherein said multiconductor cable is an RJ45 cable.

21. The system as recited in claim 19 wherein said multiconductor cable is an RJ11 cable.

22. The system as recited in claim 17 wherein said external contact is a pin.

23. The system as recited in claim 22 wherein said pin is supported by a spring.

24. The system as recited in claim 17 further comprising:

LCD units positioned adjacent to said sockets; and

LCD drivers coupled to said LCD units and said micro-processor.

25. A kit for determining connection pattern of data ports which are interconnected by standardized multiconductor cables, said data ports each having a standardized socket, and said

multiconductor cables each having a standardized jack at each end of the cable which mates with said socket, said kit comprising:

a plurality of adapter strips made of flex tape having a plurality of socket contacts, said adapter strips to be placed adjacent to said socket;

a plurality of adapter jackets to be fitted over said standardized jack, each of said adapter jackets having an external contact for electrically connecting with said socket contacts when said adapter jacket is fitted over said standardized jack and said standardized jack is mated with said standardized socket;

output signal drivers to be uniquely coupled to each socket contact, said output drivers being operative to send a signal to said socket contact;

input signal receivers to be uniquely coupled to each said socket contact for receiving said signal sent by said output signal drivers;

a micro-processor to be coupled to said output signal drivers and said input signal receivers for controlling said signal sent by said output signal drivers and for detecting signals received by said input signal receivers, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

26. The kit as recited in claim 25 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

27. The kit as recited in claim 25 wherein said external contact is a pin.

28. The kit as recited in claim 27 wherein said pin is supported by a spring.
29. The kit as recited in claim 25 wherein said adapter strips comprise:
  - a substrate having a main body and a head portion, said substrate made of flex tape;
  - a plurality of contacts placed on the main body, a spacing of said contacts corresponding to a spacing of said data ports; and
  - a conductor connecting to each said contacts, said conductor ending at said head portion.
30. A kit for determining connection pattern of data ports, said data ports each having a standardized socket, said kit comprising:
  - a plurality of adapter strips having a plurality of socket contacts, said adapter strips to be placed adjacent to said socket;
  - a plurality of multiconductor cables, said cables having a standardized jack at each end, each of said jacks having an external contact for electrically connecting with said socket contacts when said jack is mated with said socket;
  - output signal drivers to be uniquely coupled to each socket contact, said output drivers being operative to send a signal to said socket contact;
  - input signal receivers to be uniquely coupled to each said socket contact for receiving said signal sent by said output signal drivers;
  - a micro-processor to be coupled to said output signal drivers and said input signal receivers for controlling said signal sent by said output signal drivers and for detecting signals received by said input signal receivers, said micro processor interpreting said signals to determine the connection pattern of said data ports; and
  - an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

31. The kit as recited in claim 30 wherein said micro-processor determines the connection pattern of said data ports by sending a signal to a socket contact and determining which of the input signal receivers have received the signal, and repeating the process for every socket contact.

32. The kit as recited in claim 30 wherein said external contact is a pin.

33. The kit as recited in claim 32 wherein said pin is supported by a spring.

34. The kit as recited in claim 30 wherein said adapter strips comprise:  
a substrate having a main body and a head portion, said substrate made of flex tape;  
a plurality of contacts placed on the main body, a spacing of said contacts corresponding to a spacing of said data ports; and

a conductor connecting to each said contacts, said conductor ending at said head portion.

35. A system for determining connection pattern of data ports which are interconnected by standardized multiconductor cables, said data ports each having a standardized socket, and said multiconductor cables each having a standardized jack at each end of the cable which mates with said socket, said system comprising:

a socket contact positioned inside said standardized socket;

an external contact provided for each standardized jack, said external contact making electrical connection with said socket contact when the jack is mated with said socket;

an output signal driver uniquely coupled to each socket contact, said output driver being operative to send a signal to said socket contact;

an input signal receiver uniquely coupled to each said socket contact for receiving said signal sent by said output signal driver;

a micro-processor coupled to said output signal driver and said input signal receiver for controlling said signal sent by said output signal driver and for detecting signals received by said input signal receiver, said micro-processor interpreting said signals to determine the connection pattern of said data ports; and

an output indicator coupled to said micro-processor for indicating the connection pattern of said data ports as determined by said micro-processor.

36. An adapter strip for providing a socket contact for data ports comprising:

- a substrate having a main body and a head portion, said substrate made of flex tape;
- a plurality of contacts placed on the main body, a spacing of said contacts corresponding to a spacing of said data ports; and
- a conductor connecting to each said contacts, said conductor ending at said head portion.